



(19)

(11) Publication number:

0'

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PATENT ABSTRACTS OF JAPAN(21) Application number: **06074625**(51) Intl. Cl.: **B23K 26/00**(22) Application date: **13.04.94**

(30) Priority:		(71) Applicant: SEIKOSHA CO LTD
(43) Date of application publication:	31.10.95	(72) Inventor: ONO HIROKAZU
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(54) BORING METHOD OF TAPERED SHAPE

(57) Abstract:

PURPOSE: To bore a plate material, such as resin material, with a hole of a tapered shape with a high accuracy.

CONSTITUTION: The diameter of the luminous flux of an excimer laser beam 2 is first adjusted and its irradiation angle is set at an angle meeting a taper angle. The plate plane of the work 1 is irradiated with the excimer laser beam 2 to form a first inclined hole 3. Next, the irradiation angle is set at a direction symmetrical with the previously bored inclined hole and a second inclined hole 4 is similarly formed. A residual part 5 is produced the central part when the two inclined holes are bored. Next, the residual part 5 is removed by irradiating the central position of the holes with the excimer laser beam 2 from the direction perpendicular to the plate plane of the work 1, by which a nozzle hole 7 having the tapered shape is formed. The

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irradiation angle of the excimer laser beam 2 for boring the inclined holes 3, 4 is set at the large angle with the plate plane and, therefore, the energy density is high and the highly accurate hole is formed without receiving the influence of reflection and refraction at the reflection surface.

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